Facility:

Ashland Performance Materials
28015 Christopher Columbus Boulevard
Philadelphia, PA 19148

EPA RCRA I.D. NO: PAD980552251

Date of Inspection:

April 29, 2014

EPA Representatives:

Stephen Forostiak

Facility Representatives:

Eric A. Weisbrod
Environmental, Health and Safety Manager

Inspector Signature

5/30/2014
Date

Inspection Summary:

On April 29, 2014, I, Stephen Forostiak arrived at Ashland Performance Materials (APM) in Philadelphia, Pennsylvania at approximately 8:15 am. I introduced ourselves to the secretary who paged Mr. Eric A. Weisbrod, Environmental, Health and Safety Manager for APM. Mr. Weisbrod introduced himself and I displayed my credentials. Mr. Weisbrod escorted me to a conference area where I explained the purpose of the visit. Mr. Weisbrod said APM purchased this site from Cargill in 1981. APM operates 2 shifts each 12 hours. There are approximately 50 employees. APM manufactures unsaturated polyester and vinylester resin. Solvents are used to clean the process and to liquefy the end product. The solvent used for cleaning is recaptured and used again for the liquefaction of the end product. This is a closed system.

PROCESS DESCRIPTION

The raw product comes in rail car, tanker truck and various smaller containers. Ingredients used are plastics, resins, glycol, and specialty chemicals, such as catalyst and other additives. These ingredients come in liquid, powder, pellets, and wax form and are placed into one of two type of reactors. There are 2 vinyl ester reactors and 3 polyester reactors. The solvents are used after the reaction is completed to keep the product in a fluid state while being piped to holding tanks. The 2 solvents used in the production are Styrene and Methyl Methacrylate (MMA); see attachment 2 Process Overview. APM produces about 6-7 million pounds of product per month.

OBSERVATIONS

Building 76 Process Area

Mr. Weisbrod escorted me throughout the facility showing me where the raw materials come into the site and where it is stored until needed. The process reactors and blend tanks are located in Building 76. Three of the five reactors, R1, R2, & R3, are for polyester production while the others, R4 & R5, are used for vinyl ester production. There are also 9 blend and 4 thin tanks located in Building 76. Next to reactor 4 I observed a 55 gallon container with a hazardous waste label used as a satellite accumulation; see photo 4. This container collects styrene

contaminated waste from the strainers. These strainers strain the product just before it enters the blend tanks from the reactors. The 3rd floor had 2 containers being used as SAA for used rags which were labeled and contained waste codes D001 & F003. One container was about 20 gallons and the other was 55 gallons. There was another 55 gallon container used as a SAA for collecting wastewater from cleaning the floor. APM uses a product called PE-12 which is soluble in water. The container was labeled and contained the waste code D002.

Product Tank Farm

Outside at the finish product tank farm I observed a 55 gallon container considered a SAA for collecting solidified waste material from the vent box. The vent box is at the base of the Phthalic Anhydride (PA) tank. This is the only raw material tank in this product tank farm area. When the PA is pumped into the tank the vapors are vented through the vent box where the PA solidifies into a cotton like material. This material is scooped up with a shovel and place in the SAA container. The HZ waste label contained the waste code U190.

Tank Truck Loading

At the tank truck loading area there is a SAA beneath a cat walk. This 55 gallon container was labeled as HW and contained spent filters from the area overhead on the cat walk. These filter the finished products just prior to entering the tanker trucks. The container's HW label had waste codes D001 and F003 written on it.

Building 10 Warehouse, Laboratories, & Offices dag 7/16/14

In this building is where APM has their 90 hazardous storage area. I observed about 9 total 55 gallon containers in this area; see photo 1. Only 8 were labeled as HW and each had an accumulation date less than 90 days at the time of the inspection. The laboratory had one SAA container which contained acetone, toluene and acidic acid waste. This SAA container is then taken to another container which is outside between buildings 10 and 76. This container is also considered a SAA for collecting condensation from the process venting system. This container is labeled as HW and no accumulation date was observed. The Label had the waste codes D001, F003, & F005.

Catch Tank (outside)

Next to the Catch Tank is a container labeled as HW and considered SAA. A 5 gallon bucket is placed underneath the Catch Tank and the valve is opened for the drippings to flow out. The SAA container had a date of 04/13/2013. Mr. Weisbrod said this was when the first drop went in. Mr. Weisbrod stated that he wanted to determine out how long this container takes to fill. The container was observed to be a little more than ¼ full.

Building 97 Maintenance

This is where maintenance of facility equipment takes place. There is a 55 gallon container used to collect spent aerosol cans. This is considered a SAA and was labeled. Another 55 gallon container is used to collect waste rags used for cleaning tools and parts with solvents. This was also labeled as HW and considered SAA. One box labeled as universal waste lamps was observed closed in the shop area. The date on the box was 10/22/13. Mr. Weisbrod said this box should be in the universal storage area. Mr Weisbrod took me to the southwest stairwell of building 97; see photo 2. This is where universal batteries and lamps are stored. I observed an unlabeled and undated open box with one fluorescent light bulb in it. Mr. Weisbrod removed the bulb and placed in another box and resealed it. Two boxes contained the dates 8/10/13, but were not marked with the words identifying it as waste lamps; see photos 2 & 3. The smaller box on the ground was also opened, however Mr. Weisbrod said these were not waste bulbs and should not be stored in this location. Waste batteries are also stored in this area in plastic 5 gallon containers. The containers were sitting on a shelving system in this area. Three of the containers contained batteries and were labeled universal waste batteries. The dates marked on 2 of the containers were 3/15/13 and the other one was 2/6/14.

RECORDS

The following records were reviewed;

Hazardous Waste Manifests

I reviewed hazardous waste manifest records from 2014 to 2012. The HW manifests I observed were signed by the designated facilities. The following were designated facilities observed on these manifests;

1. Nexeo Solutions RCRA ID. NO. NYD049253719
2. Veolia ES Technical Solutions, LLC RCRA ID. NO. NJD002454544
3. Veolia ES Technical Solutions, LLC RCRA ID. NO. NJD980536593
4. AES Environmental LLC RCRA ID. NO. KYD985073195
5. Ross Incineration Services, Inc. RCRA ID. NO. OHD048415665

Land Disposal Restriction forms

Land disposal restriction forms were observed with the hazardous waste manifest reviewed. I observed a LDR form for each waste stream and designated facility listed in the waste manifests.

Biennial Report

Biennial reports for the 2011 and 2013 reporting years were reviewed on site. The 2011 report listed a variety of waste codes generated for approximately 102,029 pounds. The 2013 report listed approximately 37,196 pounds of hazardous waste again with various codes.

Spill Prevention, Control and Countermeasures-Contingency plan

The SPCC plan reviewed was dated as revised 10/21/2013. A description of arrangements with the local authorities was listed. The emergency coordinators and contact information were listed but not their home addresses. The plan also described the evacuation plan signals and exit routes. A list of all emergency equipment and the location at the facility was contained in the plan.

Training Records

At my request Mr. Weisbrod provided a list of trained employees along with his certificate from Nexeo Solutions LLC for Environmental Waste Management: RCRA DOT Regulations with a date 04/17/2014. A list of employees and training was also observed along with job titles and description of hazardous waste duties if applicable.

HW storage inspection logs

Hazardous waste inspections are performed weekly along with other container inspections. A gap between the dates of 12/17/12 and 01/04/13 was observed in the inspection log book.

ATTACHMENT 1
Inspection Photos

Ashland Performance Materials

2801 Christopher Columbus Boulevard
Philadelphia, PA 19148-5103

April 29, 2014 Inspection Photos

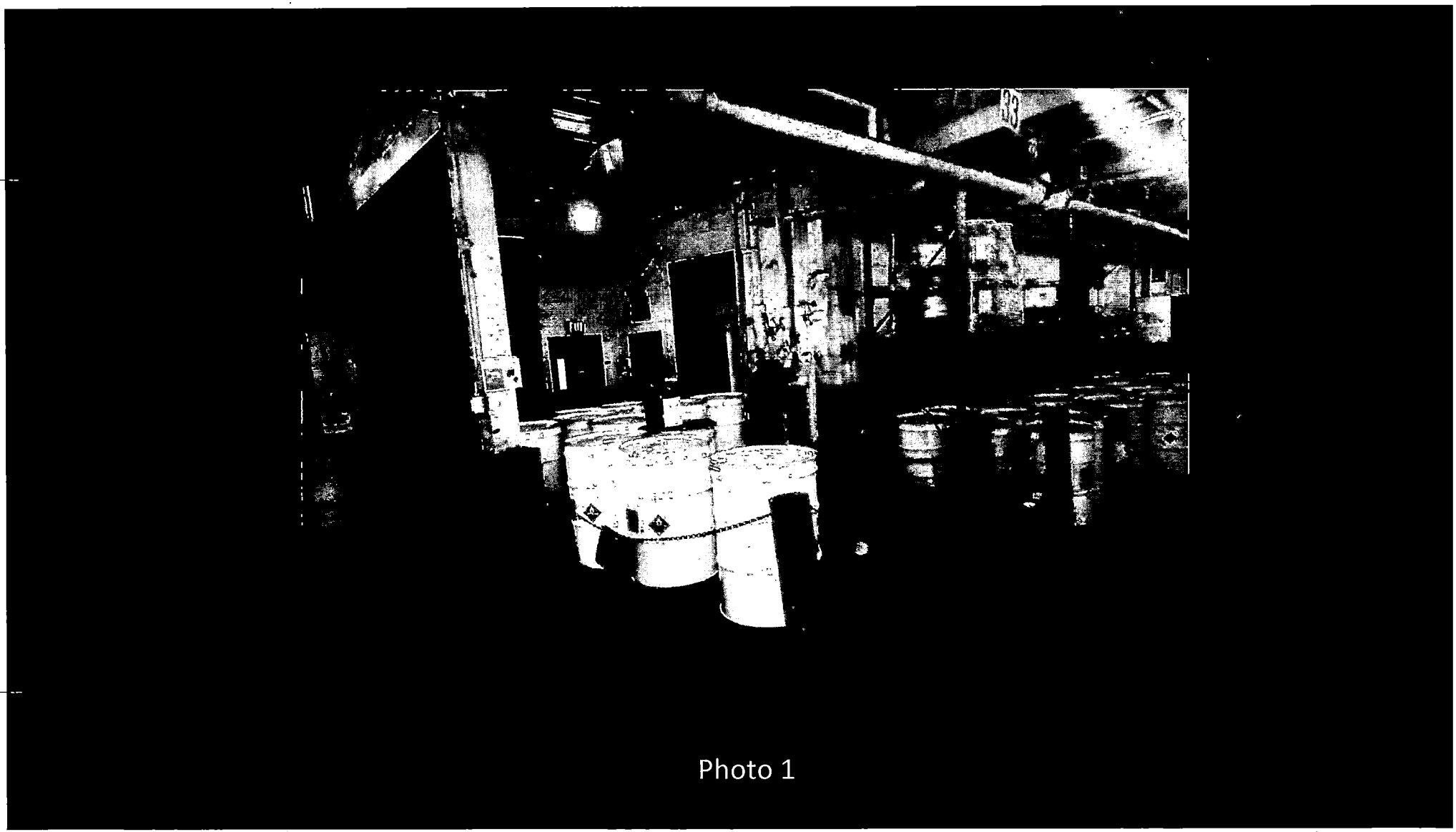


Photo 1

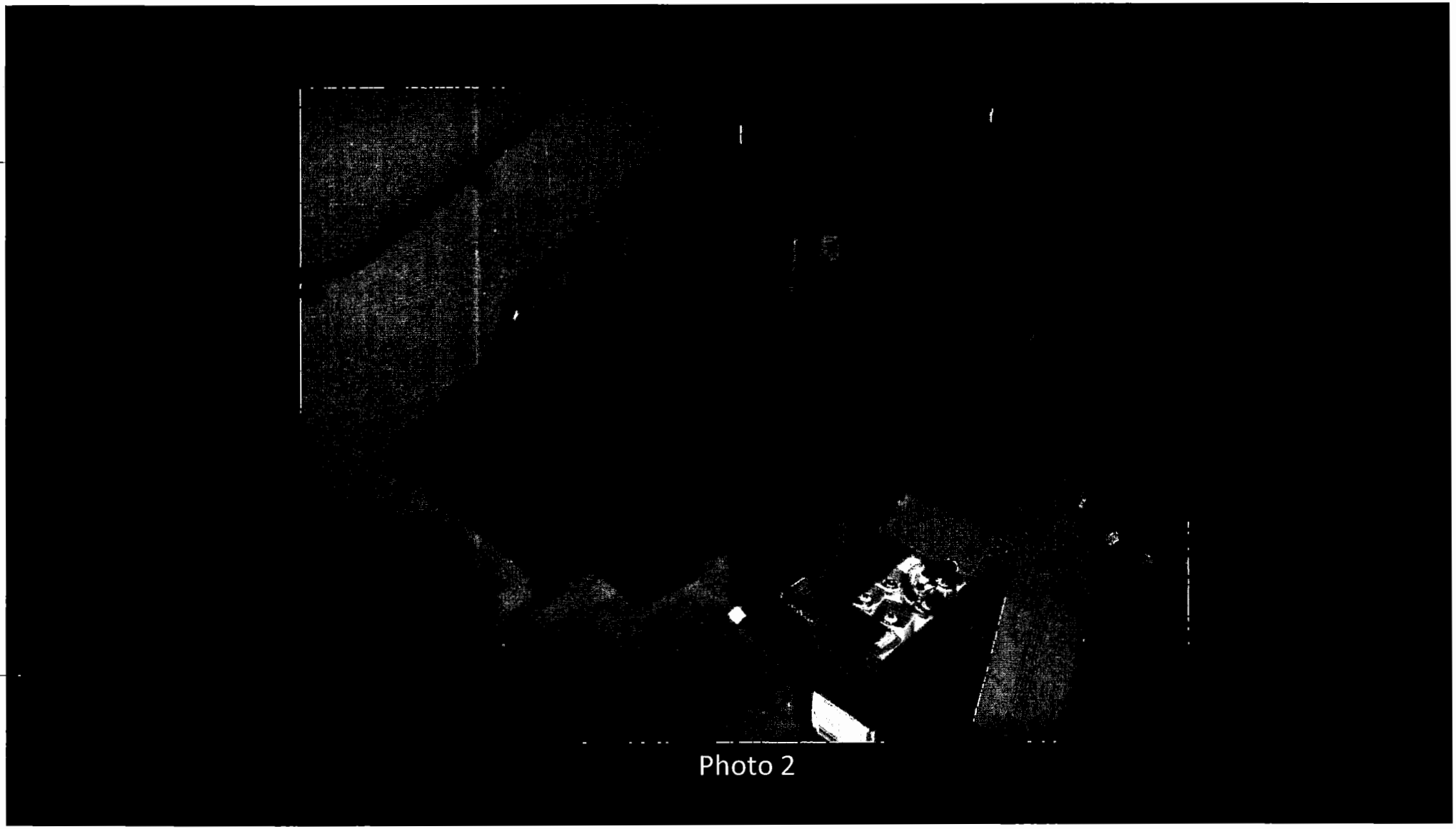


Photo 2

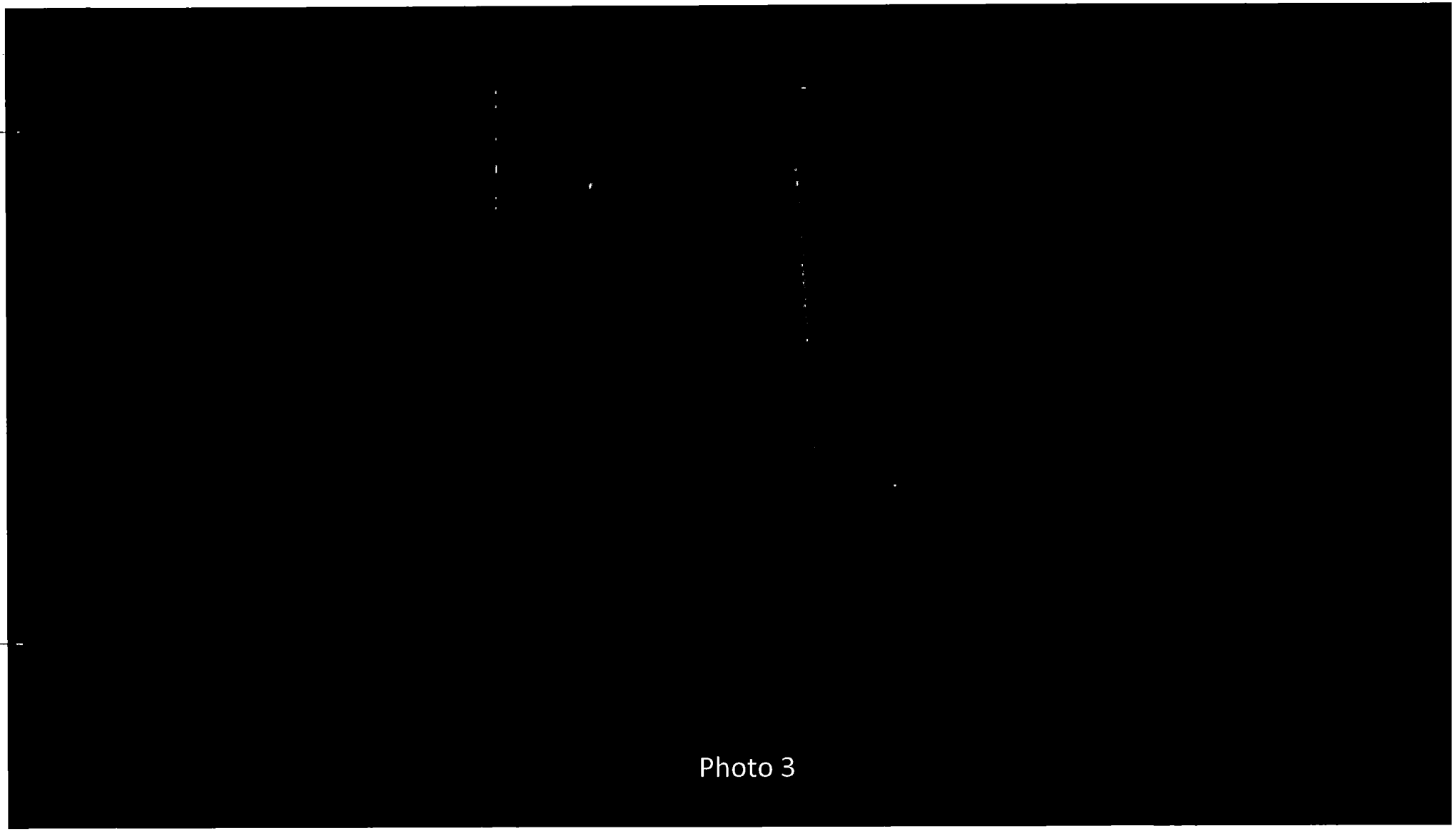
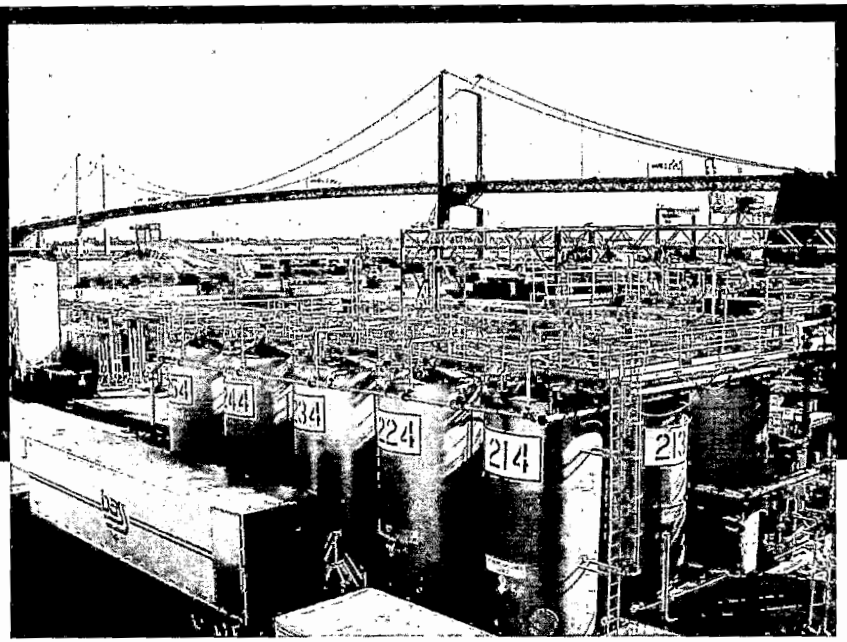


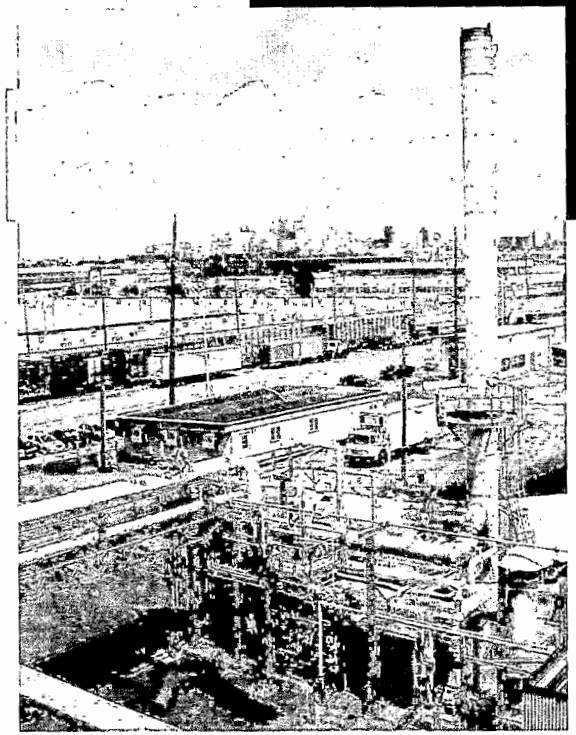
Photo 3

Photo 4

ATTACHMENT 2
Process Overview
Provided by Ashland via email

ASHLAND®





Philadelphia Plant

Raw Materials

- 100+ Raw Materials
- Received In:
  - Rail Cars
  - Tank Wagons
  - IBC/Portable Tanks
  - Drums
  - Supersacks
  - Bags
  - Pails
- Liquids, Powders, Pellets, Waxes
- Solvents, Acids/Corrosives, Plastics, Resins, Glycols, Specialty Chemicals (Catalysts, Inhibitors , Promoters, Additives, Etc)

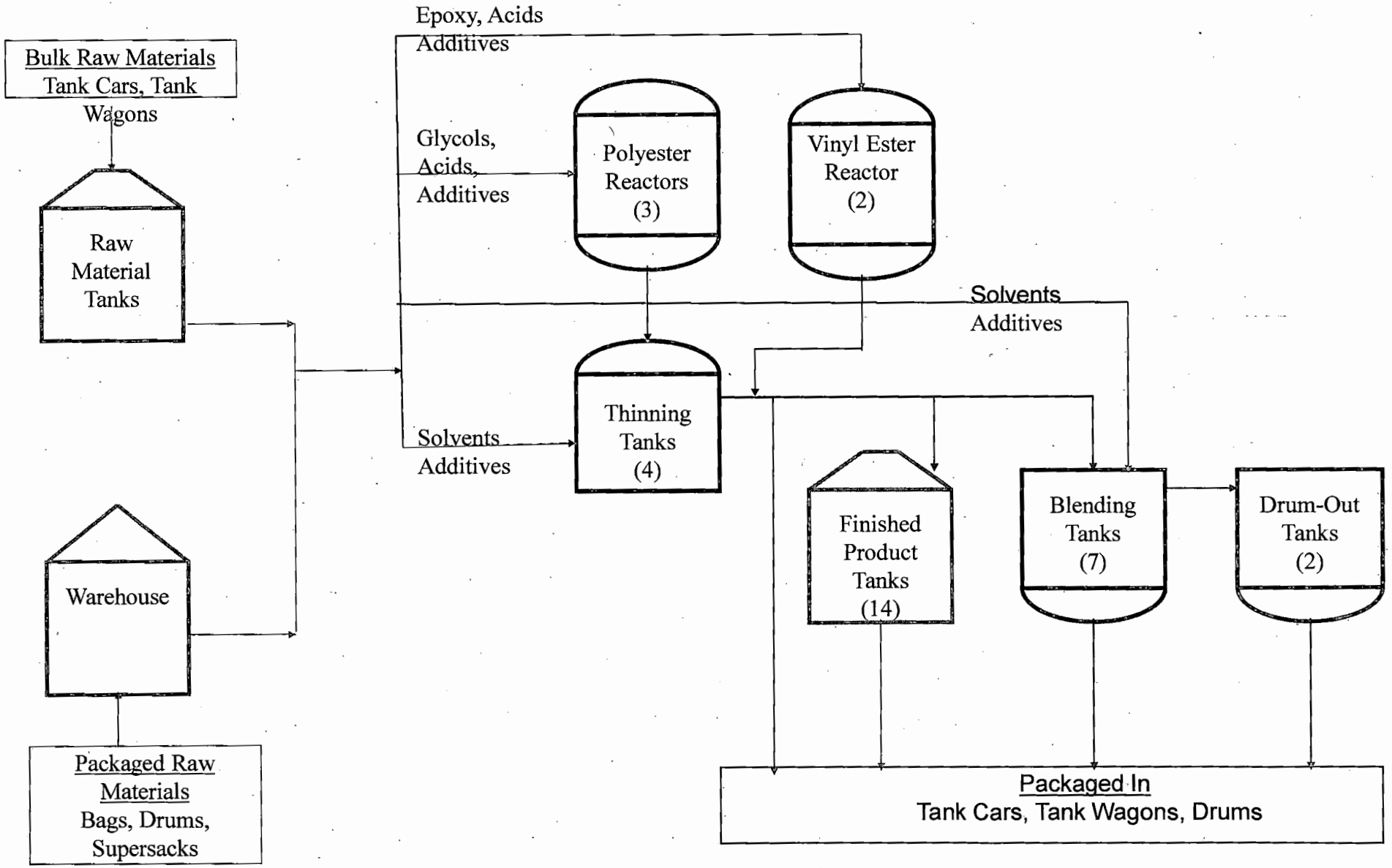
Philadelphia Equipment

- 5 Reactors
- 4 Thin Tanks
- 9 Blend Tanks
- 2 Drumming Tanks
- 14 Finished Product Tanks
- 21 Raw Material Tanks
- 2 Plant Air Compressors
- 107 Pumps
- 1 Thermal Oxidizer
- 1 Hot Oil Heater
- 1 Boiler
- 2 Yard Trucks
- 5 Fork Trucks
- 1 Manlift
- Nitrogen Vaporizers
- Miscellaneous Maintenance Equipment

Products

- 150+ Material/Container Combinations
  - All Products Are Flammable
- Breakdown By Product:
  - 60% Unsaturated Polyester Resins
  - 40% Vinyl Ester Resins
- Breakdown By Shipping Container:
  - 25% Rail Car
  - 15% Drums
  - 60% Tank Wagon

Overview Flow Diagram



Unsaturated Polyesters

- Organic Polymers – 2 classes
  - Thermoplastic - can be re-melted, shaped, and solidified into many forms
  - **Thermoset** - will not flow upon heating or dissolve in solvents
- Reaction of an organic acid with an alcohol results in an ester. Properties of polyesters can be varied using different combinations of diacids and glycols

  e.g. Terephthalic acid and ethylene glycol= polyethylene terephthalate

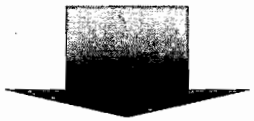
  this is the familiar PET used for clear plastic bottles for soft drinks.

Thinning

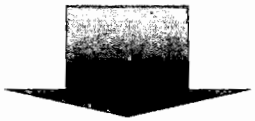
- The product (polyester resin) produced from the glycols and diacids are solid or semisolid materials at ambient temperatures…therefore most resins are dissolved into a reactive monomer for ease of handling and curing.
  - Examples of these are:
    - Styrene
    - Methyl Methacrylate (MMA)

Epoxy Vinyl Ester Resins

Epoxy Resins + Methacrylic Acid



Dissolved in Styrene



Epoxy Vinyl Ester Resins

Vinyl Ester Resins

- Higher Mw epoxies are reacted (end-capped) with glacial methacrylic acid (GMAA) for reactivity with styrene
- Diluted with styrene and other monomers
- Vinyl Esters are an Addition reaction vs. Polyesters which are a condensation reaction
- Epoxy reactions are exothermic